

No. 711,040.

Patented Oct. 14, 1902.

G. DE CESARE.

LOCK.

(Application filed Dec. 31, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.

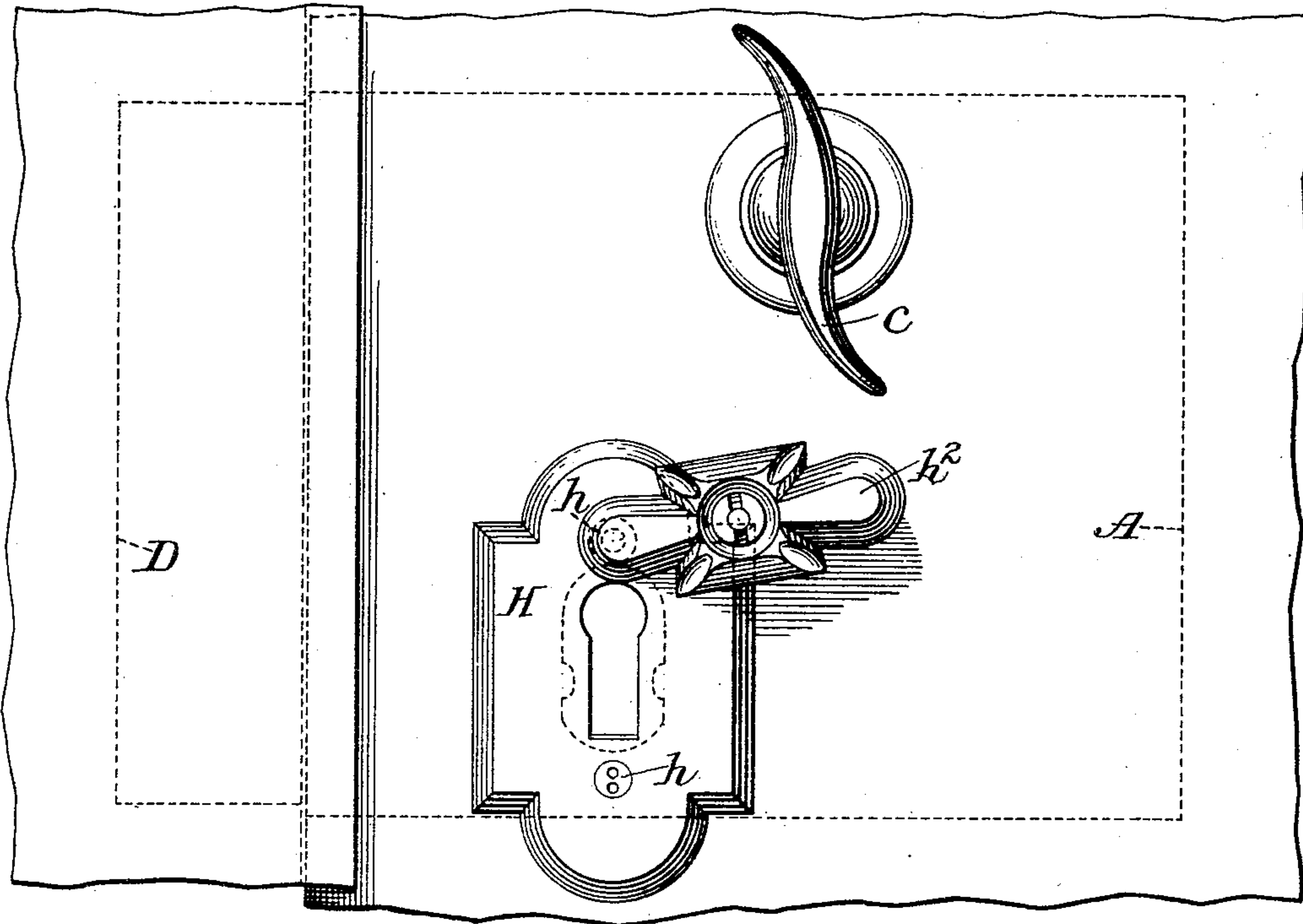
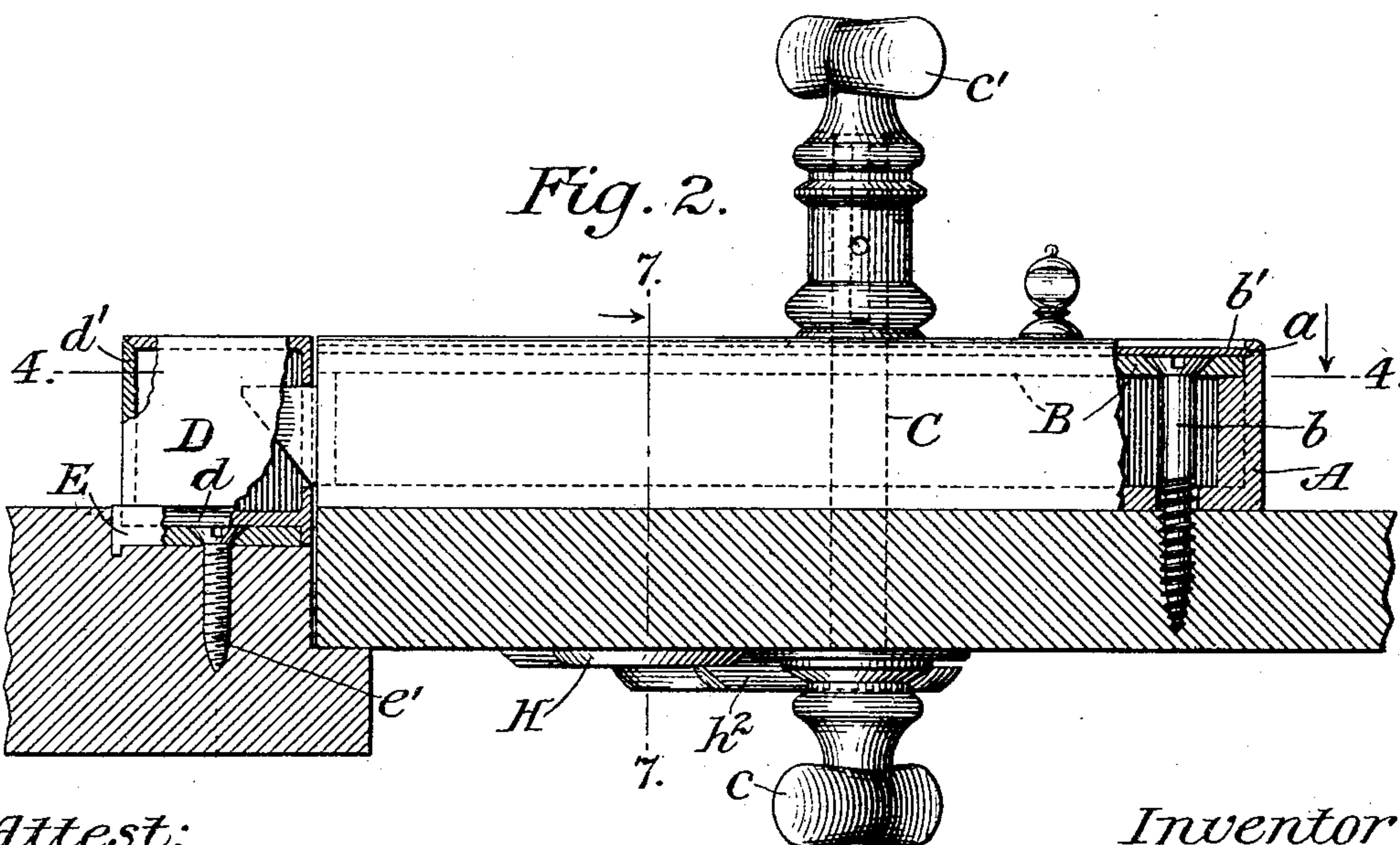


Fig. 2.



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Fig. 3.

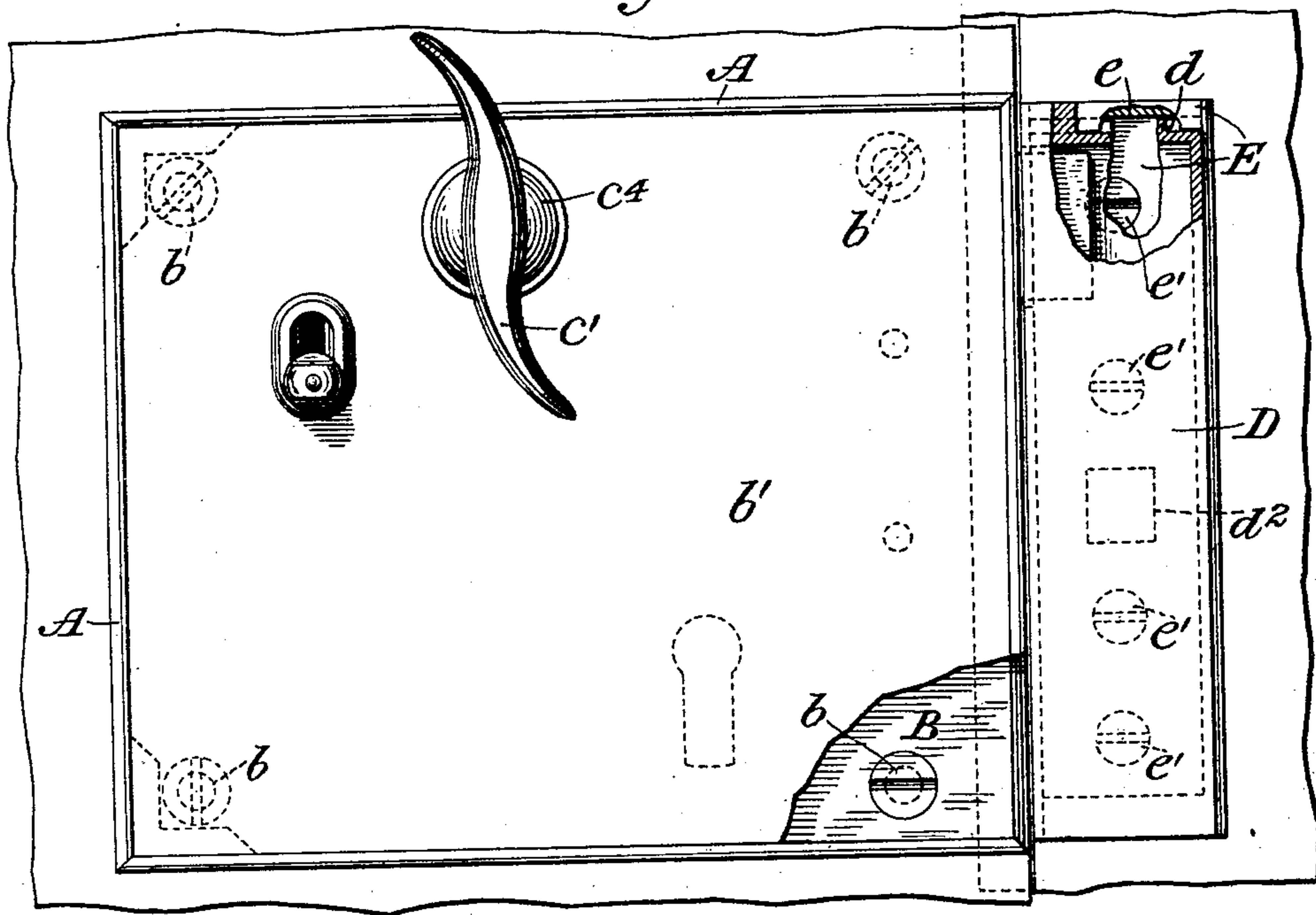
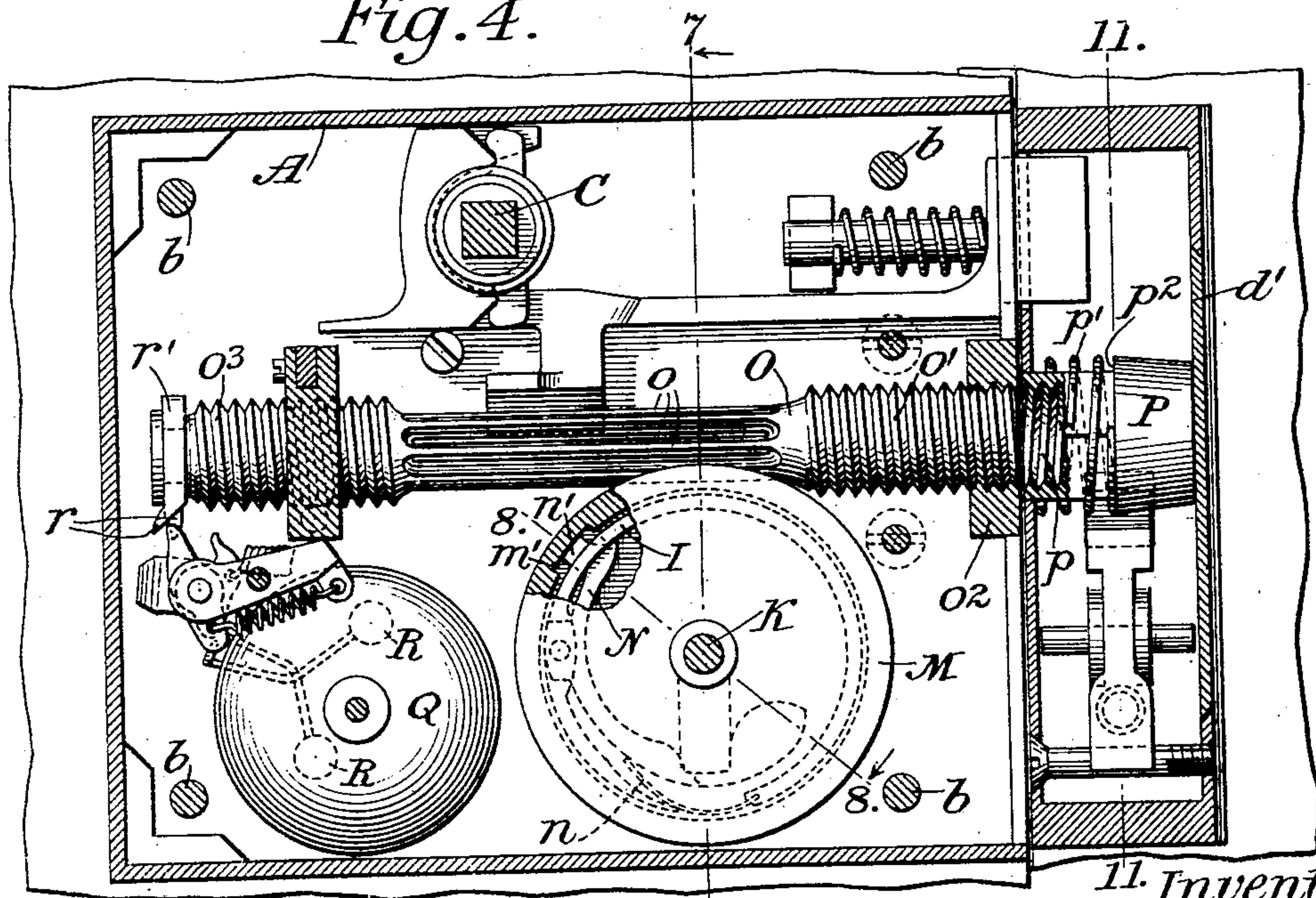


Fig. 4.



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Fig. 5.

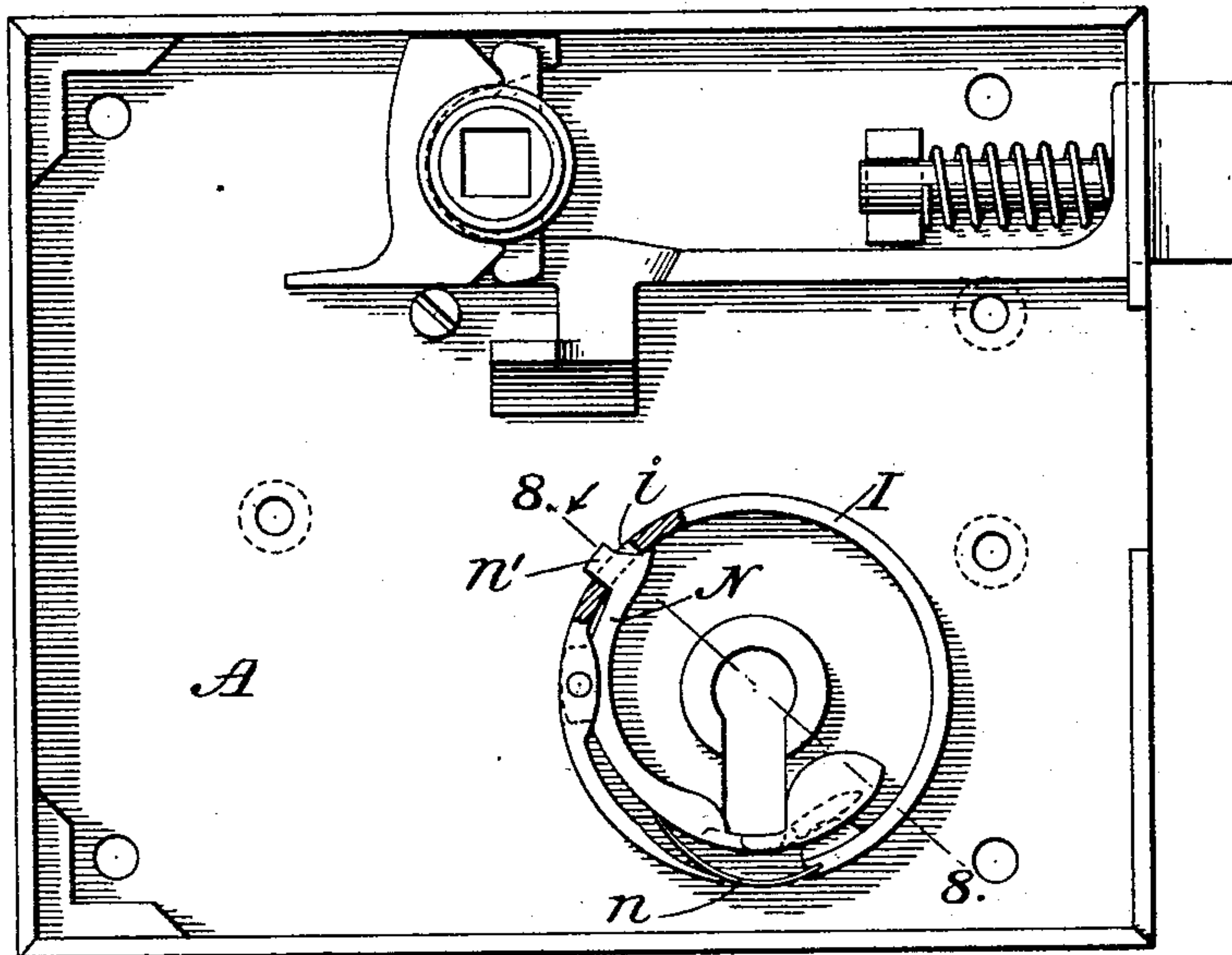
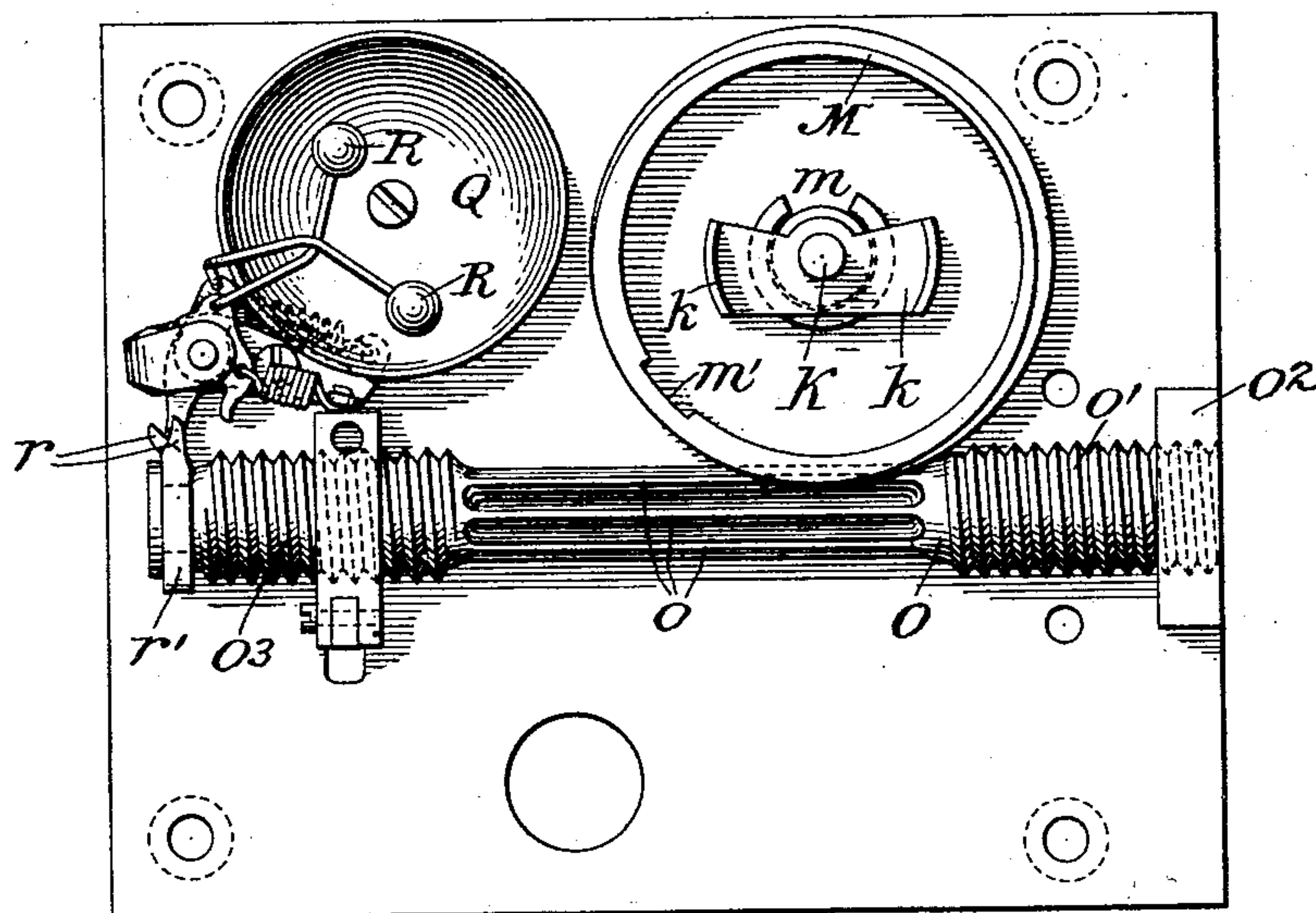


Fig. 6.



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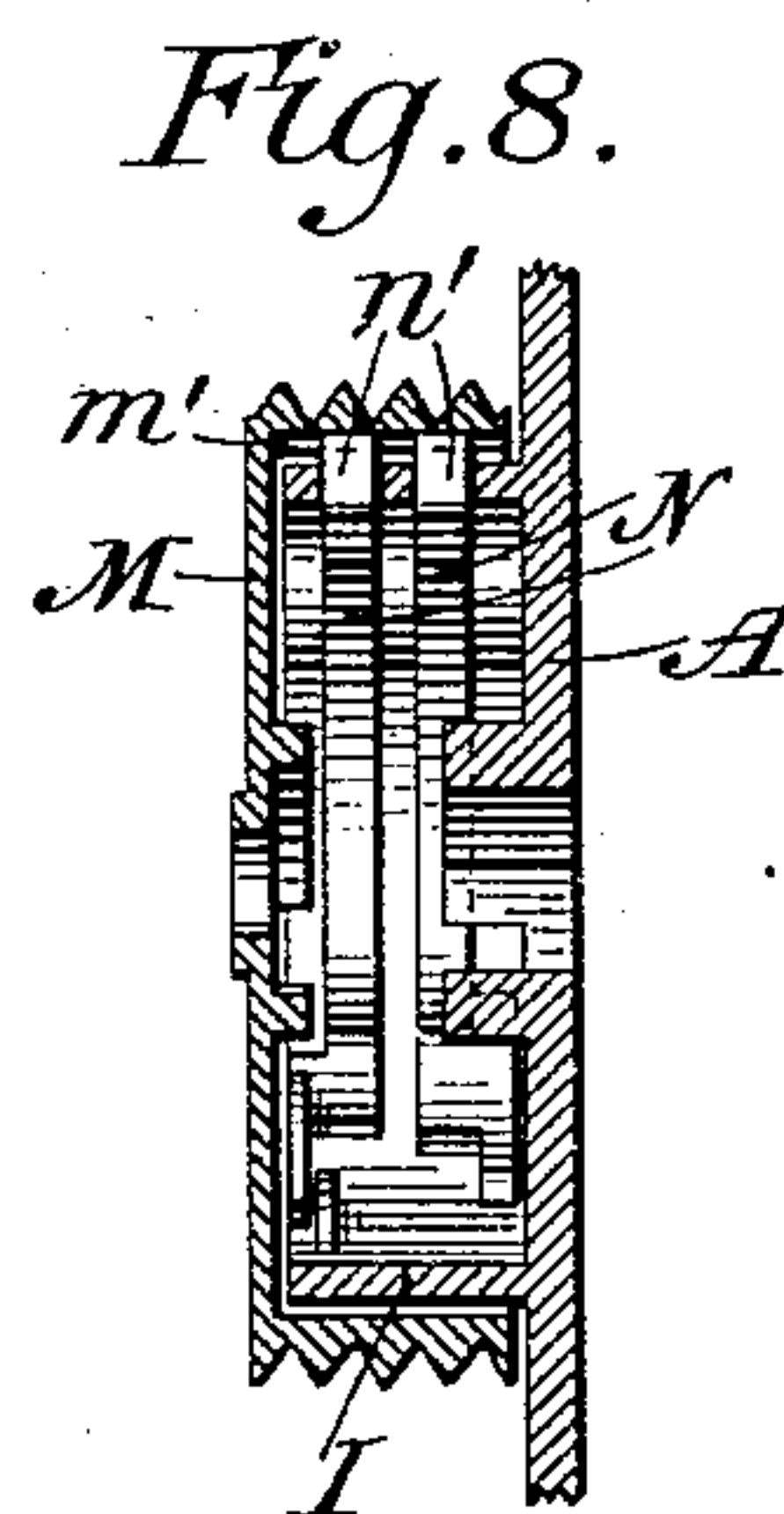
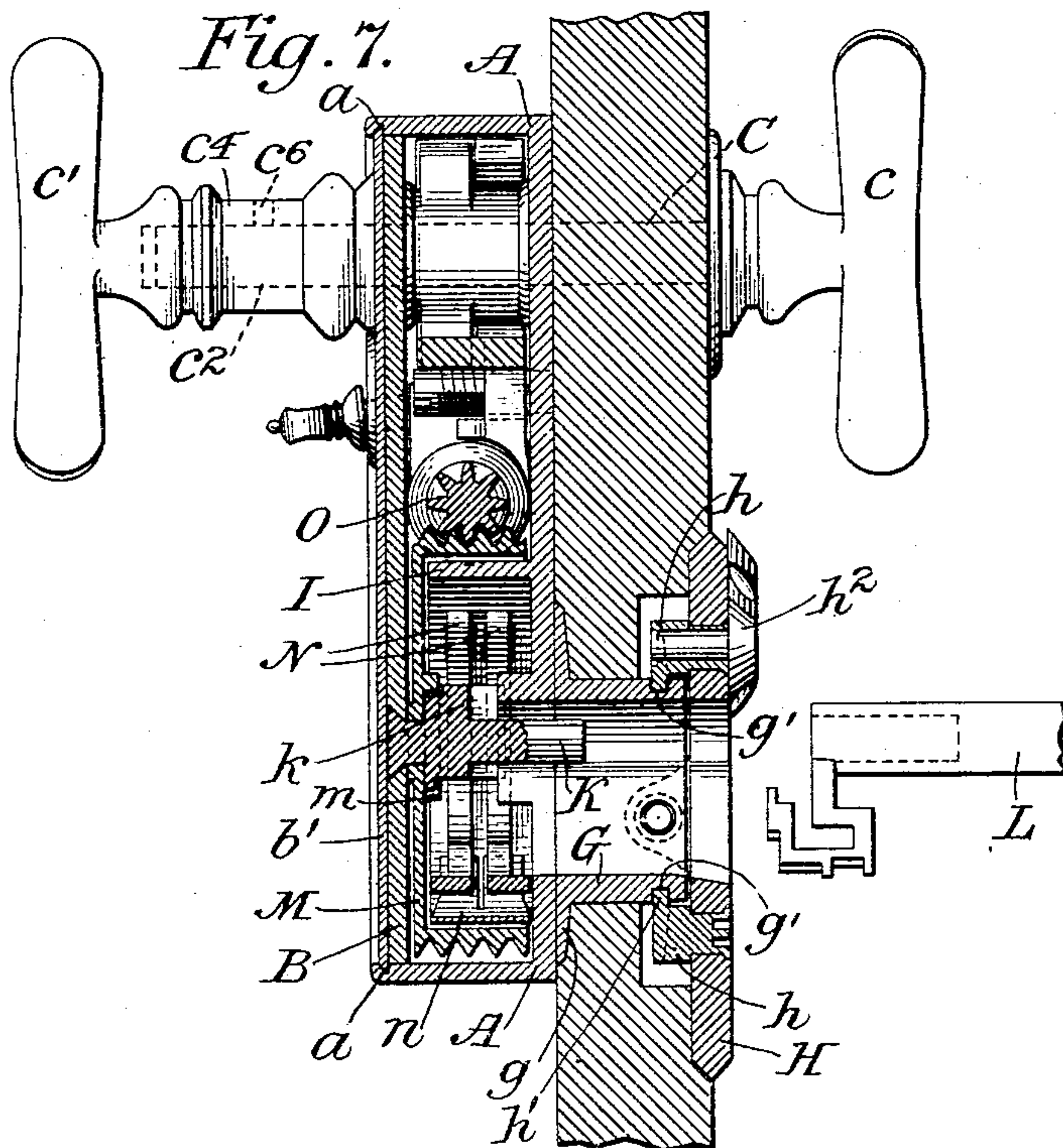
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UNITED STATES PATENT OFFICE.

GIUSEPPE DE CESARE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
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LOCK.

SPECIFICATION forming part of Letters Patent No. 711,040, dated October 14, 1902.

Application filed December 31, 1901. Serial No. 87,886. (No model.)

To all whom it may concern:

Be it known that I, GIUSEPPE DE CESARE, a citizen of the United States, residing in the borough of Manhattan, city of New York, State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

The objects of this invention are to increase the strength and the certainty of action of the bolt mechanism, to provide safeguards against tampering with the lock in any way, to provide for the indication of sufficient movement of the bolt in either direction, and generally to improve the construction of locks of the general class to which the invention relates.

The several features of improvement will be fully described hereinafter with reference to the accompanying drawings, in which for the purposes of illustration and explanation of the mechanism of the invention such features of importance are represented as embodied in a convenient and practical form.

It will be obvious as this description proceeds that some of the features of improvement are capable of use in other forms of locks than that shown in the drawings and are also capable of use independently of one another.

In the drawings, Figure 1 is a view in elevation of the portion of the door and door-jamb to which the lock is applied, showing the handle of the latch-bolt and the key-plate, the outline of the lock-case and of the bolt-socket being indicated by dotted lines. Fig. 2 is a view of the lock and bolt-socket as seen from above in Fig. 1, the door and door-jamb being shown in section and portions of the lock-case and bolt-socket being broken out to show details of construction. Fig. 3 is a view in elevation from the side opposite to that shown in Fig. 1, a portion of the lock cover-plate and of the bolt-socket being broken out. Fig. 4 is a view in vertical section on the plane indicated by the line 4 4 of Fig. 2. Fig. 5 is a view in elevation of the lock-case with the parts carried thereby, the lock-plate being removed and part of the circular flange being broken away. Fig. 6 is a view in elevation of the lock-plate with the

parts carried thereby, this view representing the lock-plate as if it had been turned down from the lock-case shown in Fig. 5. Fig. 7 is a view in vertical section on the plane indicated by the line 7 7 of Figs. 2 and 4. Fig. 8 is a detail view in section on the plane indicated by the line 8 8 of Figs. 4 and 5.

In the embodiment of the invention represented in the drawings the lock-case A is represented as a rectangular case of suitable depth to receive the mechanism of the lock. The lock-plate B is fitted within the wall of the case and is held therein by screws *b*, which preferably enter the door or other part to which the lock may be applied, as represented in Fig. 2. In order that the unauthorized removal of the lock by withdrawing the screws *b* may be prevented, the heads of the screws are concealed by the cover-plate *b'*, which is slipped over the lock-plate B, its edges entering undercut grooves *a*, formed in the walls of the case, as clearly shown in Figs. 2 and 7. The cover-plate in turn is held from withdrawal by the spindle C of the latch-bolt, which passes through the lock from side to side, having fixed upon one end thereof the knob *c* and having connected therewith on the other end the knob *c'*. The bolt-socket D is likewise secured to the jamb of the door or other corresponding part in such a manner as to prevent its unauthorized removal. For this purpose it is preferably formed as an integral casting, except as hereinafter mentioned, and is provided with an undercut edge *d* to engage with a corresponding undercut edge *e* of the socket-plate E, the latter being secured to the jamb of the door or other corresponding part by screws *e'* before the bolt-socket is slipped into engagement therewith, which is done when the door is open. The heads of the screws *e'* are thus covered by the bolt-socket, so that they are not accessible when the door is closed and locked. To permit the placing of the bolt-head and other parts contained within the bolt-socket, a section *d'* of the socket-wall is made removable, its ends being beveled to fit the corresponding edges of the wall, as shown clearly in Fig. 4. This removable section is slipped in place before the socket is applied to the socket-plate, its upper edge engaging the outer wall of the

socket, while its lower edge is protected by the flange of the socket-plate E.

The keyhole through the door or other corresponding part is provided with a metal lining G, having at its inner end a flange g , which is covered by a lock-case, thus holding the lining securely in position. The escutcheon H is secured to the keyhole-lining by revolvable studs h , each of which has at its inner end a lug h' to engage a corresponding notch in the end of the keyhole-lining G. One of these removable studs may be made the pivot of the keyhole-cover h^2 , while the other may be formed at its outer end for engagement of a spanner, as clearly indicated in Figs. 1 and 7.

The bolt mechanism, which will now be described, is shown in Figs. 4, 5, 6, 7, and 8. A circular flange I is preferably formed integral with the lock-case, concentric with the eye of the keyhole, having at a suitable point therein one or more slots or notches i . A pin K is secured to the lock-plate B, concentric with the flange I, to enter the hollow end of the key L (shown in Fig. 7) in the usual manner to center and steady the same, the pin having secured thereto suitable wards k to cooperate with the clefts of the key. A worm-wheel M or drum having a worm formed on its outer periphery is mounted rotatably upon the pin K, having lugs or a notched ring formed thereon, as indicated at m in Fig. 6, for engagement with the web of the key, so that said worm-wheel or drum can be rotated by means of a key when the latter is properly inserted. Pivoted within the flange I are the tumblers N, carrying cams n^2 for engagement with a key, and which are preferably held in normal position by a spring n , the lug n' of each tumbler passing through the slot or notch i in the fixed flange I into engagement with a notch m' , formed in the drum or worm-wheel M, so that such drum or worm-wheel cannot be rotated until the tumblers have been operated by the proper key to release the same.

The worm-wheel M engages the long gear-teeth o of the longitudinally movable and rotatable bolt O, which is threaded, as at o' , for engagement with a fixed nut o^2 , carried by the lock-case. The rear end o^3 of the bolt O is supported in a suitable bearing and may be threaded therein, as represented in Figs. 4 and 6. Within the bolt-socket is mounted a bolt-head P, which is interiorly threaded, as at p , for engagement with the threaded end of the bolt O when it is projected, the bolt-head being held from rotation by any suitable means, as by having its shank polygonal in cross-section to fit in a corresponding aperture formed in the front wall of the bolt-socket. A spring p' may be applied to the shank bolt-head, thrusting against a shoulder p^2 thereon, to press the bolt-head back into the socket, so that its shank shall not project beyond the front wall of the socket

when the door is open. It will be understood that when the drum or worm-wheel is rotated in the manner already described the bolt O will also be rotated and by means of its threaded engagement with the lock-case will at the same time be advanced, so that the bolt will enter and engage the bolt-head, thereby locking the door. At the same time the bolt-head will be drawn outward until it impinges closely upon the lock-case, thereby making it impossible to reach the bolt itself with any implement.

Means are provided for indicating when the bolt has been moved sufficiently in either direction. As shown in Figs. 4 and 6, such means comprise a gong Q, supported within the lock-case, two hammers R being suitably supported in the lock-case to cooperate with the gong, the tail of each hammer projecting into the path of a corresponding lug r , carried with the bolt O in its longitudinal movement. The lugs r are formed, preferably, on a ring r' , which is hung loosely on the end of a bolt O, the weight of the lugs causing the ring to stand always in the proper position, so that the lugs shall strike the tails of the hammers. It will be observed by reference to Fig. 4 that the tails of the hammers are differently disposed, so that one hammer shall be operated as the bolt reaches the limit of its forward movement and the other as the bolt reaches the limit of its rearward movement.

The mode of operation of the locking mechanism has been already described sufficiently and will require no further explanation here. It will now be obvious that various changes in the form and construction of the various parts of the improved lock may be made without departing from the spirit of the invention and also that some of the features of improvement described herein are capable of use independently of the other features.

I claim as my invention—

1. In a lock, the combination of a screw-threaded bolt having longitudinal grooves forming long gear-teeth thereon, a fixed nut for said bolt, and a key-operated worm-wheel operatively engaging said gear-teeth to rotate said bolt while permitting longitudinal movement thereof, substantially as described.

2. In a lock, the combination of a screw-threaded bolt, means to rotate and advance said bolt, a bolt-socket, and a bolt-head having an interiorly-threaded shank to be engaged by said bolt, substantially as described.

3. In a lock, the combination of a screw-threaded bolt, means to rotate and advance the same, a bolt-socket, a bolt-head having an interiorly-threaded shank to be engaged by said bolt, and a spring to press said bolt-head normally into the socket, substantially as described.

4. In a lock, the combination of a screw-threaded bolt having longitudinal grooves forming long gear-teeth thereon, a key-oper-

ated worm-wheel engaging said gear-teeth, and tumblers engaging said worm-wheel to prevent rotation thereof.

5. In a lock, the combination of a bolt, a key-operated drum in engagement with said bolt, and tumblers pivoted within and engaging said drum to prevent rotation thereof, substantially as described.

6. In a lock, the combination of a case, a bolt, a key-operated drum in operative engagement with said bolt, a circular flange fixed upon the case and inclosed by said drum, and tumblers pivoted upon said flange and engaging said drum to prevent rotation thereof, substantially as described.

7. In a lock, the combination of a case having a fixed nut, a screw-threaded bolt engaging said nut and having long gear-teeth, a key-operated worm-wheel engaging said gear-teeth, and tumblers engaging said worm-wheel to prevent rotation thereof, substantially as described.

8. In a lock, the combination of a case having a fixed nut, a screw-threaded bolt engaging said nut and having long gear-teeth, a key-operated worm-wheel engaging said gear-teeth, a circular flange fixed on the case, and tumblers pivoted on said flange and engaging said worm-wheel to prevent rotation thereof, substantially as described.

9. The combination with a lock-case, a lock-plate, fastening devices passing through the plate and case, and a cover-plate engaging the case and covering the fastening devices, of a circular flange fixed upon the case, a bolt, a key-operated drum in operative engagement with said bolt and inclosing said flange, and a tumbler pivoted upon said flange and engaging said drum to prevent rotation thereof, substantially as described.

10. The combination with a lock-case, a circular flange fixed upon said case, a bolt, a

key-operated drum in operative engagement with said bolt and inclosing said flange, and tumblers pivoted on said flange and engaging said drum to prevent rotation thereof, of a keyhole-lining having at one end a flange to be covered by the lock, an escutcheon, a removable stud carried by said escutcheon, and a lug to engage a slot formed in the keyhole-lining, substantially as described.

11. In a lock, the combination of a case, a bolt, a key-operated drum in operative engagement with said bolt, a circular flange fixed upon said case and inclosed by said drum, and a tumbler pivoted upon said flange and carrying a lug, said drum having a notch which is engaged by said lug to prevent the rotation of the drum, substantially as described.

12. In a lock, the combination of a case, a bolt, a key-operated drum in operative engagement with said bolt, a circular flange fixed on said case and inclosed by said drum, and a tumbler pivoted upon said flange and carrying a lug and a cam adapted to be operatively engaged by a key, said drum having a notch which is engaged by said lug to prevent the rotation of the drum until the cam is operatively engaged by the key to cause said lug to release the drum, substantially as described.

13. In a lock, the combination of a case, a bolt, a drum in operative engagement with said bolt and provided with a lug for engagement with a key, a circular flange fixed upon the case and inclosed by said drum, and tumblers pivoted upon said flange and engaging said drum to prevent rotation thereof, substantially as described.

This specification signed and witnessed this 23d day of December, A. D. 1901.

GIUSEPPE DE CESARE.

In presence of—

ANTHONY N. JESBERA,

LUCIUS E. VARNEY.